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ABSTRACT

This publication examines the relationships between research and development organizations and school systems. The stereotyped views that members of each kind of organization have of one another and the actual differences between them are explored. The views of both research and development personnel and school personnel were obtained through interviews. Practical solutions dealing with the structure of arrangements between the research group and the school (exchange, political influence, participation, consortia, demonstration, and research vouchers) are recommended along with techniques for facilitating productive relationships. (Author)

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IMPROVING RELATIONS BETWEEN R & D ORGANIZATIONS AND SCHOOLS

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Introductory Statement

The Center's mission is to improve teaching in American schools. Too many teachers still employ a didactic style aimed at filling passive students with facts. The teacher's environment often prevents him from changing his style, and may indeed drive him out of the profession. And the children of the poor typically suffer from the worst teaching.

The Center uses the resources of the behavioral sciences in pursuing its objectives. Drawing primarily upon psychology and sociology, but also upon other behavioral science disciplines, the Center has formulated programs of research, development, demonstration, and dissemination in three areas. Program 1, Teaching Effectiveness, is now developing a Model Teacher Training System that can be used to train both beginning and experienced teachers in effective teaching skills. Program 2, The Environment for Teaching, is developing models of school organization and ways of evaluating teachers that will encourage teachers to become more professional and more committed. Program 3, Teaching Students from Low-Income Areas, is developing materials and procedures for motivating both students and teachers in low-income schools.

The effective use of research programs in the practical world of schools is a problem to both researchers and school people. Part of Program 2 is concerned with studying educational organizations that can support and accommodate a wide range of programs. This paper examines the links between research and development efforts and school systems, and suggests ways to improve their relationship.

Contents

Abstract iv

Methodology 3

Problems that Hinder Relationships 5

A Clash of Views 5

The Real World of Practical Problems 7

The Researcher's Lack of Attention to Practical Problems . . . 7

The Professionalism of Field Users 8

Duplication of Effort 9

Lack of Feedback to the Host Field People 9

Resistance Generated by Evaluation Research 10

Linking Strategies 10

An Exchange System 11

Political Influence 12

Participation 13

Consortia 13

Demonstration 14

Research Vouchers 15

Facilitating Field Relationships 16

Formalizing Field Arrangements 16

Financing Field Activities 17

Staffing R & D Organizations 17

Developing Feedback Policies 20

Promoting Interaction with Education Personnel Training Institutions 20

Conclusion 21

References 23

Abstract

This article examines the relationships between research and development organizations and school systems. The stereotypes that members of each kind of organization have of each other and the actual differences between them are explored. The views of both research and development personnel and school personnel were obtained through interviews. Practical solutions dealing with the structure of arrangements between the research group and the school (exchange, political influence, participation, consortia, demonstration, and research vouchers) are recommended along with techniques for facilitating productive relationships.

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During the expansive years of the middle 1960's many people believed that social science research--including the branch dealing with educational issues--could tackle and solve the social crises of the age. The nation was slowly moving in the areas of housing, school integration, mass transportation, and poverty. Liberal politicians, academic researchers, and the man in the street were united in the optimistic hope that American life could change for the better.

In the educational arena a number of innovative ideas were confidently offered by the research community: computer-assisted instruction, new modes of testing, open-space classrooms, team teaching, and novel styles of community-school relations. Paralleling the "War on Poverty" was the "War on Ignorance," fought with money poured into educational research. The educational research and development system was born in that era of social science efforts--federal centers and laboratories were opened, schools of education expanded research efforts, and private R & D firms were launched.

Yet now, in the middle seventies, the optimistic glow of the sixties looks naive, and the promises have not been delivered. Cynicism, disbelief, and suspicion have been expressed by disenchanted teachers, counselors, principals, and school boards fighting the front-line educational battles. The myth has faded that Super-researcher could step into a laboratory and emerge to conquer the villains attacking the educational system. A once-enthusiastic Congress has turned its attention elsewhere; a once-believing teacher corps wonders why all the effort has produced little real change; a once-invincible research group now doubts its ability to handle serious issues. In short, this is a different era in educational research and development.

It is almost unnecessary to say that the relationships between educational researchers and school personnel are breaking down. The reasons for the changed relationships are clear. The volume and the scale of educational research have increased enormously; educational researchers have too often played to an audience composed only of their academic peers, causing resentment among educators; and the organized power of better educated teachers and administrators is reflected in their critical attitudes toward researchers.

Although the relationships between field personnel and researchers have been deteriorating, a basic conceptual change occurring in educational research brings hope for the future. Traditionally, the conceptualization of the research process has been linear--one stage of research moving on to the next without feedback loops (see, e.g., Clark and Guba, 1965). First, basic research is conducted; then, useful information is developed into products such as new organizational arrangements or better textbooks; next, these products are distributed; and, finally, they are fitted into a school system.

By contrast, many educational researchers are now promoting a nonlinear model, a close working relationship in which teachers, administrators, parents, and students directly participate in the total research effort. (For a review of alternative models, see Educational Research and Development in the United States, 1970.) This complex research process crosses professional and organizational lines, and involves schools and researchers with planning, development, implementation, and evaluation. Always present is the common goal of using research findings to solve actual educational problems. Constant feedback is required to effectively link school personnel with researchers.

There are numerous advantages to this nonlinear, almost circular research process. Basic researchers have the accountability problem reduced; developers have the satisfaction of having their work used more as they intended; and schools have a real stake in research and development. Although increasing the strength of the linkages between researchers and field users through sustained interaction presents problems, we

affirm the need for it for these reasons:

1. It focuses attention on problems critical to educators in the field. Educational R & D has greater impact if it solves problems existing in the field rather than problems arising within academic disciplines.

2. It solves the problem, common to researchers, of "getting into the schools" to do research.

3. It offers constant feedback during the course of research and development.

4. It provides valuable test sites for developed programs and processes.

5. It may result in a cadre of interested, enthusiastic users who act as allies during implementation phases and during the political controversies accompanying serious attempts to improve educational programs.

This paper argues several critical points. First, more and improved relationships are definitely needed between the R & D specialists in universities, research centers, and educational laboratories and the field users in public schools, state agencies, legislatures, and colleges. Second, serious weaknesses have developed in the procedures linking R & D professionals and the educators they are supposed to serve. Third, careful planning and skillful interaction may reduce some of the strains and problems.

Methodology

The two research studies which form the basis for this paper investigated the linkage problems described above and explored possible solutions. The first study (Baldridge and Johnson, 1972) was sponsored by the National Academy of Education; it examined the nineteen federal educational research and development centers and laboratories previously supported in part by the Office of Education and now under the aegis of the National Institute of Education. The goal of the research was to study organizational structures, field user relationships, and the impact of research products on field usage. Rather than being restricted

to a single research design, the study used a variety of techniques. A literature search of documents such as annual reports, budget justifications, program descriptions, and selected program outputs from the R & D institutions was conducted. At sixteen sites interviews were carried on with key management and research personnel, including all but one of the directors. Other interviews were held at private research organizations (e.g., American Institutes for Research) and at the U. S. Office of Education. Most of the questions and issues focused on staffing patterns, management practices, and relationships with field users.

The second study, not previously reported, evolved from an eighteen-month effort by Deal, a Research and Development Associate at the Stanford Center for Research and Development in Teaching. While working to improve ties between local schools and the Center, he and his staff interviewed six county superintendents, 34 district superintendents, three Boards of Education, approximately 50 principals and 200 teachers, and representatives from professional organizations, local colleges, and the California State Department of Education. The specific purpose of this work was to gain the cooperation of school districts in a three-year study to be conducted by one program at the Center.

The two studies provide different but complementary approaches to the problem. The Baldridge and Johnson work covered a broad range of institutions and compared them systematically; the Deal work concentrated on one institution and its links to field users. Although both research efforts focused on the federal system of R & D centers and labs, we believe the basic conclusions apply to the educational research enterprise wherever it is conducted: in schools of education and disciplinary departments within universities, in private research firms, and in governmental agencies. From both sets of information it was obvious that serious problems exist in relationships between research institutions and the school systems:

1. There is growing resistance to letting outsiders come into a school or district to conduct research.

2. There is a widespread feeling among teachers and administrators that research and development efforts have not really helped schools to cope effectively with their many problems.

3. Schools rarely receive useful feedback from research that has been performed with their cooperation.

4. A common, unfavorable stereotype of the educational researcher, his contact with reality, the value of his work, and his motivation has emerged.

In short, our inquiries into the research issues showed that at a time when increasing cooperation between R & D efforts and field users is needed by researchers, there is an increasing reluctance from field users.

Problems that Hinder Relationships

Why has the resistance to cooperation in research grown? Part of the problem has been a clash in the basic viewpoints traditionally held by both groups. Another part of the problem has resulted from blunders made by researchers in their past relations with field personnel. In the next sections we examine the contrasting viewpoints and some of the practical problems.

A Clash of Views

To some extent, the chasm between R & D personnel and field users is based on a genuine difference in perspectives. From the researchers' viewpoint there is a need for controlled experiments, testable propositions, statistically verifiable results, and publishable material for scholarly journals.. Conversely, the field personnel need solutions to everyday problems, attention to non-controllable, real-world settings, quick feedback, and practical results. Out of these genuine and legitimate differences have grown myths that are exaggerated images of the real problems.

In the mythology of the field user, the researcher is an unfeeling egghead with computer printout in hand who advances impractical theories to schools populated with random samples. From the opposite viewpoint, the myth portrays a nonintellectual, short-sighted school person, bogged down in a world of lesson plans, report cards, and Dick and Jane. These

extreme, negative stereotypes disrupt or prevent relationships that might otherwise be beneficial (see Table 1). Neither group is more guilty of myth-making than the other--both have spun a web of beliefs and feelings that help determine their interaction.

TABLE 1

Real and Stereotyped Differences Between Researchers and Field Users

A real difference in:	Is blown into a stereotype:
Time perspectives: researchers are looking for long-term payoff, while field users need solutions to immediate problems.	Researcher = "1984" dreamer Field User = short-sighted
Experimental control: researchers need to control as many factors as possible, while field users must deal with full complexity of ongoing situation.	Researcher = unfeeling manipulator, data shuffler, computer-bound Field User = do-gooder; fuzzy and emotional thinker
Problem definition: researchers are seeking to prove basic social science propositions, while field users want daily practical problems solved.	Researcher = head-in-clouds, ivory tower intellectual Field User = nonintellectual, nose-to-grindstone
Policy orientation: researchers try to design efforts to affect general social policy, while field users want local issues addressed.	Researcher = theoretical world-changer Field User = stop-gap measures, band-aid mentality

Demythologizing is extremely difficult. Communication and mutual participation may reinforce the stereotypes rather than break them. A vicious circle can occur in confrontation situations. Through selective perception each group "sees" exactly what it expected in the other.

Moreover, each group worries that perhaps the negative image projected on it by the other is accurate. These worries generate even more defensiveness, more selective perception, and more hostility.

Part of the solution to interrupting the myth-building cycle between R & D personnel and field users is knowing that myths are to a large degree just that--unreasonable stereotypes and false images. Another part of the solution, however, is recognizing that authentic differences do exist, should continue, and must be tolerated. Like most stereotypes, these characterizations do have a kernel of truth. Acceptance of the valid differences may be a major step toward linking the two groups in effective, complementary efforts.

The Real World of Practical Problems

The myths and belief systems of field users and researchers have helped to create the gulf between them, but real problems have made effective relations difficult. The nature of research itself, the growth of professionalism in schools, the lack of feedback, and the fear of evaluation are some of the obstacles to productive field relations.

The researcher's lack of attention to practical problems. School people often perceive researchers as highly impractical theoreticians, unresponsive to real world problems. A California school superintendent complained about a research and development staff: "They're always chasing theoretical rainbows, and frankly, I doubt there's a pot of educational gold at the end!" Social scientists, trained to be scientific loners, have had difficulty working in programmatic enterprises requiring cooperation with developers, field users, or decision makers. As a result, educational policy makers seeking advice from social scientists leave either altogether empty-handed or without implementation procedures.

The organizational structure of social science disciplines and their professional norms militate against effective policy research or development efforts. In whatever discipline, work that has social problem solving as its goal has not been held in high esteem in a world

that measures only articles, monographs, and research reports as valid evidence of scientific work.

In addition, the separateness of academic disciplines has made it difficult to address the real issues in the field. Often, theoretical paradigms used by the social sciences systematically exclude practical implications as legitimate subjects for investigation. The issue was well stated in the 1969 report of the Behavioral and Social Services Survey (p. 93):

> Many academic scientists value the prestige that their contributions to basic research and theory give them in the eyes of their peers more than whatever rewards might be obtained from clients who would find their work useful. It is no wonder that university scientists prefer the kind of research that is satisfying in itself (because it is self-initiated and free of restraints) and leads not only to scientific knowledge, but also to respect and status tendered by those whose judgments they value most. It is no wonder, either, that their value systems are passed on to their students. Thus, much of the applied work in disciplinary departments is done by those who for one reason or another do not compete for the highest prizes of their disciplines.

Thus, an academic reward system which pushes researchers away from the very areas field users consider critical is a major cause of the ineffectiveness of R & D professionals in universities and, to a lesser degree, in R & D centers and labs.

The professionalism of field users. Teachers, administrators, and other educational personnel, now more aware of their professional status, are reinforcing it by adding to their own skills and by supporting the growth of professional organizations and unions. Historically, many educational professionals in schools felt overshadowed and outclassed by the supposedly heavy-weight intellectuals from universities, and researchers could command cooperation through the mechanisms of status, prestige, and the aura of "science."

Now, however, the conscious drive toward professional status among educators has diminished that prestige and power differential and they are rightfully demanding a larger role in the definition of research problems and the degree of their participation. As one of the teachers

in San Francisco phrased it, "We're tired of academic arrogance, the holier-than-thou mentality of the hot-shot from the university who comes out to save the schools. It's time we were recognized as true professional partners in this process, not second class citizens." This recurring theme was expressed during interviews at several sites: Educators have a growing demand for professional recognition, a willingness for serious intellectual partnerships, and an eagerness to share in the decision making.

Duplication of effort. During on-site interviews a constant complaint concerned the duplication that occurred when researchers did not coordinate their efforts. Some school districts around major universities and R & D laboratories are harassed by streams of researchers interrupting schedules, using the time of teachers and administrators, and taking children out of classes to serve as subjects. Because the chorus of criticism has grown so loud, many research organizations are attempting to coordinate their field ties. A faculty committee of the Stanford University School of Education recently proposed guidelines to control faculty entry into nearby schools; CEMREL, the laboratory in St. Louis, has encouraged coordination among field contacts by stressing formal contract arrangements; the Wisconsin R & D Center in Madison maintains a central file of all field contacts and uses a coordinator to minimize duplication of efforts; the Southwest Regional Laboratory in Los Angeles channels all field contacts through a senior administrator who guides researchers away from over-used field sites.

Although some complaints about duplicated efforts and harassment by researchers may be exaggerated, the problem of duplication and overactivity in some field sites is genuine.

Lack of feedback to the host field people. Part of the resistance to research efforts at educational sites is caused by a lack of adequate feedback. Too often a host site furnishes time, energy, and money in order to obtain promised research benefits, only to discover that the researchers leave without giving them useable feedback. The director of research for the Oakland, California, school district reported a startling, but apparently common fact: In the 1972-73 school year 81

research projects were carried on in that district by outsiders, but only two gave formal feedback to the district on the research results. This obviously has a corrosive effect on present and future relationships, and school systems have become wary of the "promise them anything" line that is often used to gain entry.

Resistance generated by evaluation research. "Accountability" is a current catchword, and to many it means more evaluation of performance and more research into the effectiveness of different programs, projects, and activities.

Although serious quality control of social policy efforts is needed, it is important to realize that evaluation creates strong feelings of anxiety and apprehension among those examined. As research personnel are increasingly drawn into the area of evaluation, they need to be aware that they may be greeted with little enthusiasm by field personnel. After all, it is the field users who are being criticized and told what is wrong with their efforts, and program and project evaluation can cut off vitally needed funding. Naturally, the fear of unfavorable evaluation generates hostility, as summarized from a lecture by Michael Scriven at Berkeley: "The people running the programs often see evaluation as an effort to kill projects that are dearly loved, and which have cost sweat, blood, and tears at the local level. As a consequence, the local people welcome the evaluator much as they would any other assassin!" Because research is identified with evaluation, it is important for researchers to allay false fears when the research actually does not have evaluation aspects, and to carefully communicate the purposes, strategies, and consequences when it does.

Linking Strategies

To this point the discussion has centered around the barriers between researchers and their field users. On a more optimistic note, however, our research revealed a number of successful "linking strategies," organizational practices that promoted communication and helped prevent misunderstandings.

A variety of functional patterns for improving relationships between R & D centers and labs and their field users were examined. When we attempted to describe and categorize those linking strategies, it was obvious that many techniques overlap. There are no neatly packaged tactics for educational researchers to use in developing field relationships; the strategy depends upon the nature of the research and the unique needs of the field users. However, one or more of the following procedures may have high payoff for both sides.

An Exchange System

The simplest system linking centers and labs to the field is the exchange or barter strategy. Products, research results, problem solutions, or money are exchanged for field time, use of sample populations, or money. This "consumer" concept has the advantage of being a clear-cut and balanced transaction in which both sides gain. An additional positive aspect is that an exchange relationship is easily understood by both parties because analogs in business and industry have provided successful, long-term models.

But there is no Better Business Bureau for the users of educational research products, and buyers on both sides need to beware. In this particular barter situation the value of the products (results, information) is difficult to assess, and the seller may not be providing what is really needed. For example, twenty hours of personal interviews with teachers may be perceived as more valuable than a two-page analysis that took twenty hours to write. An added disadvantage of the exchange system is that researchers often spend inordinate amounts of effort and time cultivating a market for services that may not be really mutually beneficial.

Using individuals or groups to do research on a consultancy basis is an exchange strategy that can set the stage for furthering research interests beyond solving immediate school problems. Whether the researcher-consultant is hired by a district, or field users are paid as consultants to researchers, the relationships are usually well defined and formalized contractually. The research network could benefit by

encouraging more educational personnel from the field to act as paid consultants to the centers and labs. This "reverse consulting" has many advantages--bringing in practical expertise, marshalling field support, and solidifying future contacts in the field.

Research networks have used many variations of exchange strategies to relate to field users, and reactions and responses to the results were also varied. "Our research staff has become a sales force" was one viewpoint expressed, while others felt "the research was valuable to everyone concerned." In any event, if the linking tactics are specific and tailored to each unique field situation, exchange strategies can be effective.

Political Influence

Essentially a selling process without a product, political influence is a strategy that may have to be used before an exchange relationship can be developed. Successful political strategies can have great potential in the educational change process by building a supportive field network based on trust or political trade offs. For example, the Stanford Center first gained approval of the Environment Program's proposed survey research project from the Association of California School Administrators. The Association, in turn, then sent letters expressing confidence in the study and encouraging Bay Area school districts to participate. On the other hand, researchers who are inept politicians may find themselves spending their limited time and money at political fence mending with no guarantee of productive outcomes. As a result, some research organizations keep away from influence tactics and retreat into their world of pure research, saying, "We'll leave the pork-barreling up to Washington."

Somewhere in limbo--neither a political influence strategy nor a total immersion as participants in the research effort--is the use of advisory boards and committees. As a political maneuver, teachers, administrators, and community members have too often been used as tokens of field involvement in the planning and implementation of educational innovations. This criticism does not mean that advisory boards can

never function as a limited form of political influence or participation strategy. One successful example is the Stanford Center's use of teachers from diverse programs and organizations to provide valuable inputs to research. In addition, a superintendent of a local school district serves as a voting member of the Center's executive board. These examples point out the potentialities of advisory committees as vital contacts with field users that may lead to the deeper involvement of participation.

Participation

This linking strategy supports programmatic, nonlinear research by providing constant feedback from the field users who share a personal stake in the outcome. Participatory relationships mean that field users and R & D organizations together define common problems, plan the research and development procedures, specify tasks, implement ideas, and evaluate results. The participants' status should be based on the expertise each brings to bear on the shared problem. Certainly it is time for professionals in the field who provide their insight and practical experience to be awarded the respect of their peers in research. Working together on common tasks not only results in research focused on real problems, but also has the advantage of breaking down the myths which kept researchers apart from teachers and schools.

Of course, participation can be unwieldy, time-consuming, and difficult to coordinate--speed and efficiency are not outstanding features of the democratic process. But despite the conflicts inherent in two such different perspectives as those held by research organizations and school systems, the benefits of participation to both may surmount the difficulties.

Consortia

The consortium is a group of organizations that pool their existing sources of money, time, and knowledge in attacking common problems. The Participation to Activate Change Today consortium, organized by the Wisconsin R & D Center, is an impressive example of a successful, integrated consortium formed to implement the multiunit school concept. All of

Wisconsin's multiunit schools (more than 300) are involved; six schools of education run training programs; liaison committees operate at many large school districts; installation teams visit consortium members with problems; and state coordinators are trained by the Center. Naturally this system requires a heavy commitment from the Center for staffing, financing, and coordination. Although the basic organizational structure of the consortium is often unstable, and the size creates difficulties in coordination, the advantages may outweigh the logistic disadvantages.

One variation of the consortium strategy was the regional cooperative, as developed by the Appalachia Educational Laboratory. The mountain districts of the region were too small and too limited in resources to implement educational innovations. As a solution to this problem, superintendents, teachers, and administrators shared knowledge, equipment, and methodology on a regional basis. The districts furnished the personnel and funds, and the lab avoided a directive role. The laboratory, on the other hand, accumulated data on school problems and operations, enabling it to push forward in research.

Still another type of consortium linked the Southwest Educational Development Laboratory in Austin, Texas, with the Dallas Public Schools, the Perot Foundation, and the Texas State Department of Instruction. These cooperating agencies agreed to implement a variety of educational innovations at one location. This site development strategy contrasts sharply with the product development strategy that stresses a single product for use in a number of settings. The lab is an equal partner, neither dominant nor directive, and gains much by its dynamic relationships with the other organizations.

Demonstration

In one sense, demonstration techniques are methods to sell research ideas to potential field users, but demonstration models can also be described as efforts by researchers to create their own field users so that others can judge the applicability of the research. A long-standing prototype is the laboratory school, a ready-made experimental site where pilot projects are highly visible applications of theo-etical research.

Special summer schools can provide a short-term intensive workshop for research implementation; another possibility is for research and development organizations to contract for an entire district of field users, running long-term, well-articulated programs. Whatever the scope of a demonstration strategy, "pure" researchers and theoreticians may find pilot projects a comfortable entry into the practical world of educational problems.

It is necessary, though, for demonstration projects to include ways for schools to adapt ideas to their own use. One criticism from teacher-observers has been, "Those concepts work beautifully in the controlled lab school project, but we want to know how to apply the ideas to our own schools." There is also the danger of creating prototypes that are too expensive to be used on any large scale by school systems.

Research Vouchers

One possible linking procedure is a voucher plan giving field users federally funded vouchers exchangeable for R & D time, staff, or products. The concept, untested at the research level, is being tried in pupil selection of elementary schools, and the assumed advantages in that area may prove true in the research context: (a) a "free market" with users determining needs; (b) reducing the influence of university-based centers by encouraging competition--and possibly higher quality--as researchers vie for money; and (c) built-in long-term evaluation--if the center performs well, it will get future contracts; if not, the user looks elsewhere.

Of course, educational vouchers may not be a panacea either, for they could negatively affect long-term basic research and development capabilities, as researchers chase after the immediate payoff of voucher money. In addition, the flow of educational fads could undermine the development of a stable pool of talented researchers. In any event, a voucher strategy deserves to be examined.

Although this discussion of tactics for linking research efforts to field users by no means exhausts the possibilities, the strategies presented do merit trial. As long as both researchers and school

personnel jointly choose a method of cooperation that best suits their needs, and as long as they keep the lines of communication open, the strategies and the results may be effective.

Facilitating Field Relationships

Whatever the strategy chosen to involve research and development institutions with their field users, establishing definite management procedures will facilitate the relationships. Effective management techniques include formalizing arrangements between organizations; specifying their financial agreements; balancing the staffs of centers and labs; developing policies regarding feedback; and promoting interaction with educational training institutions.

Formalizing Field Arrangements

As we investigated this issue we found that arrangements between research centers and field users ranged from contacts with a minimum of formality to agreements that insured the recognition of rights and responsibilities on both sides. Formalized approaches worked well because expectations were understood, commitments were clear, financial resources were accounted for, and feedback to the schools was sustained. Conversely, simple verbal approval and vague letters subjected research centers to later criticisms on the grounds of unspecified or misunderstood purposes and nonexistent follow-up.

An example of successful facilitative management practices was found at Southwest Regional Lab (Los Angeles), where field testing was done only after a detailed agreement had been approved by both parties. Only specified laboratory personnel contacted the schools directly, their purposes and procedures were approved by school administrators in advance, and full reports were given to districts upon completion. This prevented the familiar complaints from school personnel that researchers used schools without benefiting the district.

As a result of Southwest Lab's careful, detailed procedures, a number of school districts requested that they be used for field testing

and research purposes. In contrast, people at centers using informal approaches often discussed the difficulties of getting into districts to do research. These observations reinforce the recommendation that relations between R & D organizations and field users should have at least a minimal degree of formality, with clear, written statements of intent and responsibility, and regularized systems of feeding information back to the host schools.

Financing Field Activities

We found many different patterns of payment for field activities. In some cases school districts paid R & D organizations for services as they tested new products; the laboratory in Austin derived much of its budget from this source. Other R & D organizations did the opposite, paying the host school or district to allow them to work there; this was done by the Johns Hopkins Center for Social Organization of Schools and by Pittsburgh's Learning R & D Center, which contributed over $100,000 per year to Oakleaf and Frick schools, where its innovations were tested.

Another financial arrangement was payment by a third party--a private foundation, a federal government agency, or the state department of instruction--for the trial use of innovations. Research for Better Schools (Philadelphia), Wisconsin, and Southwest Lab provided examples of this pattern.

Whatever the financial patterns adopted, they must be designed to fit each center or lab and the districts they use, and must be tailored to meet available funds. We therefore recommend no specific type of funding, but urge that information be distributed to make all concerned parties aware of the various possible financial arrangements. In addition, federal officials in NIE should review financing for field testing efforts so that their budgets reflect an appropriate emphasis on such activities.

Staffing R & D Organizations

The staffing pattern undergirds the basic philosophy of any research and development effort, for at the nerve center of every organization are the personnel who translate visions into action and who use

organizational structures to accomplish goals. Because this paper argues for increased involvement of R & D organizations with field users, staffing patterns are a crucial issue and bear reexamination.

The research and development system is an excellent place for the birth of coherent new disciplines of applied social science, with their own norms, reward systems, and methodologies. One such role developed by a number of labs and centers is the "educational catalyst," a person remaining in the field to test and implement R & D programs, and to act as a liaison with the R & D organization. CEMREL had such "change agents" in Chattanooga, Nashville, Bowling Green, and the Pennsylvania Department of Instruction. The National Laboratory for Higher Education instituted the "Educational Development Officer"--a full-time staff position devoted to systematic organizational change in colleges, using innovations from R & D research. The Center for Urban Education in New York used full-time, on-site field personnel in its Community Learning Centers to implement innovations and provide feedback.

Another emerging profession in research and development is the "linking" role that involves the complex task of moving new concepts, procedures, materials, or structures from research into everyday educational usage. The linking role can be managerial, joining research and practice; developmental, subjecting the results of basic research to the test of practical use; or implementary, translating research material into operational procedures. All these linking roles demand creative skills, serious training, and methodological tools equal to those needed in basic research. Inherent in the liaison position of the linking professional or field relations specialist is the problem of serving two masters, a problem which exposes those who fill that marginal position to criticism from both directions. Therefore, the linking staff should be afforded the prestige, money, and influence comparable to that of the research staff.

Along with the evolution of new roles and disciplines, R & D organizations should consider broadening the social science base of their staffs to include such existing disciplines as sociology, anthropology, political science, and history. Creating interdisciplinary mixes of

personnel not only brings a multi-faceted approach to problem solving, but also expands the narrow range of disciplinary concerns traditionally limited to psychology and education. In fact, our research into the disciplinary backgrounds of key R & D personnel shows that the largest number, both with Ph.D. degrees (38%) and without (43%), are in education. Among the professional employees in the social sciences there is dominance of psychology backgrounds (with Ph.D.'s, 19%; without Ph.D.'s, 41%). This disciplinary imbalance may have limited the R & D vision--the problems identified, the methodologies used, and the conclusions arrived at. Another staffing matter concerns part-time versus full-time staff and faculty status versus nonfaculty status. University-based R & D centers typically employ as part-time associates faculty members who undertake multiple research and teaching commitments and who appear more interested in disciplinary, theoretical inputs to basic research. Since development is as important and as difficult as basic research, R & D centers must simultaneously solve two problems--recruiting academic researchers who will not divert the center from developmental goals, and employing skilled nonfaculty personnel, giving them the necessary status and incentives.

Many different solutions to the staffing problems have been successfully applied. In the centers at Oregon and UCLA, for example, some faculty members participated in research and development on almost a full-time basis. At the Wisconsin Center nonfaculty professionals with the title of "scientist" directed the development work. The R & D Center for Teacher Education at the University of Texas (Austin) employed strong nonfaculty personnel in a highly systematized operation. The Pittsburgh Center is notable for the quality of its work and also for its heavy nonfaculty to faculty ratio, averaging about 6 to 1; this approach mixed strong faculty input for conceptualization and research with high-status nonfaculty professionals concerned with practical problems and field issues.

Who staffs the centers and laboratories and how their expertise is used is paramount to the successful impact of research on field users.

Developing Feedback Policies

In order to maintain goodwill and to provide an objective evaluation of ongoing programs or innovations for professionals, responsible feedback must be given regularly. Over the years critics of educational research have felt the lack of useable feedback so strongly that they appear ready to tell researchers to return to their ivory towers.

An example of potentially effective guidelines for feedback are these proposed by a faculty committee of the Stanford School of Education:

1. Before a project starts the project staff should carefully plan and budget for responsible feedback on the progress of the activity.
2. The host agency should be given specific details about proposed feedback, its timing, and its nature.
3. Issues of co-authorship and appropriate credit in writing from a project should be settled formally and in advance.
4. When a project is well under way it is helpful to have a preliminary feedback session. This sustains morale in the project and uncovers troublesome issues early.
5. When an activity is completed it is important to report to the field users. The written feedback document could be supplemented with a public presentation to the project.

Whether these particular guidelines are adopted is not important; what is crucial to field personnel is that follow-through be explicit and maintained.

Promoting Interaction with Education Personnel Training Institutions

Changes in education cannot occur without first reaching those whose direct impact on students is greatest--teachers and school administrators. Although nearly every person connected with education goes through a formal training program in colleges and universities, our studies concluded that there were very few effective relationships between the R & D network and the personnel training network. The studies isolated only small-scale interactions, such as Wisconsin's use of six schools of education to train personnel for the multi-unit schools, Austin's connection with a number of teachers' colleges, and Stanford's skeletal involvement in a teacher education program. Despite the

widespread circulation of R & D activity reports to an audience which includes educational professionals, the channel between teacher education and the R & D network is predominantly one-directional. To prepare future school personnel for active participation in R & D work, research centers and labs should expand their interactions with schools of education.

Some types of innovations from the R & D centers and labs seem natural inputs to schools of education: new teacher training programs, new methods of institutional evaluation, proposals for reworking administrative structures, and new curriculum packages. In addition, teacher training institutions are the most logical places to develop and educate students for the new research-practice linking professions.

Conclusion

There is little doubt that educators have had good reason to question the impact of educational research. In recent years they have observed a research and development network concerned primarily with its own expansion and maturation. It is no surprise, then, that the myths about researchers have been perpetuated, and that school personnel have become increasingly reluctant to admit researchers into their systems.

In an attempt to promote stronger links between the R & D effort and field users, this paper argues for nonlinear research that involves school systems in the total research process. The argument is based on two studies which examined the attitudes, suggestions, and successful practices of both R & D organizations and school districts. The research revealed some successful linking strategies--organizational patterns that strengthened the relationships between the R & D network and school personnel--and others have been proposed. These linking strategies cover a broad continuum ranging from a simple exchange of services to the total participation of consortia.

In addition, certain facilitating techniques were noted that could help make the strategies work. These included making formal contractual arrangements and financial agreements to insure that responsibilities

and expectations are clearly understood, and staffing R & D organizations in a way that enables them to serve the wide range of field-defined issues.

The most compelling reason for studying the relationships between the theoretical world of research and the practical world of schools is not merely to answer the cries of irrelevance. What is critically needed to solve the complex problems facing schools is close and mutually beneficial collaboration.

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